Addendum II

July 1999

CRS Site Component

Commissioning Evaluation Package

for NWS Field Office Use

Table of Contents

Acronyms

AFOS	Automation of Field Operations and Services
ARONET	Alaska Region Operations Network
ASCII	American Standard Code for Information Interchange
AWIPS	Advance Weather Information Processing System
CLIN	Contract Line Item Number
COTS	Commercial Off-the-Shelf
CRS	Console Replacement System
CWA	Center Weather Advisory
CWFA	County Warning Forecast Area
DEC	Digital Equipment Corporation
EAS	Emergency Alert Service
EHB	Engineering Handbook
EM	Emergency Manager
EO	Emergency Override
EO	Evaluation Official
ET	Electronics Technician
FEP	Front-End Processor
FIPS	Federal Information Processing Standard
FP	Focal Point
FSK	Frequency Shift Keying
GUI	Graphical User Interface
HWR	Hourly Weather Roundup
ID	Identification
IDU	Initial Database Utility
LAN	Local Area Network
MIC	Meteorologist-in-Charge
MP	Main Processor
MRD	Message Reference Descriptor
MU	Monitoring Unit
NOAA	National Oceanic and Atmospheric Administration
NWR	NOAA Weather Radio

NWRSAME   NWR Specific Area Message Encoder

NWS   National Weather Service

PC   personal computers

PRONET   Pacific Region Operations Network

RD   Regional Director

ROAMS   Remote Off-Air Monitoring System

SAME   Specific Area Message Encoder

SCM   System Commissioning Manager

SOO   Science and Operations Officer

syn-voice synthetic-voice

TIP   Technical Information Package

WCM   Warning and Coordination Meteorologist

WFO   Weather Forecast Offices

WSH   Weather Service Headquarters

WSOM   Weather Service Operations Manual

www   world-wide-web

II-1 Introduction

The primary mission of the Console Replacement System (CRS) is the continuous and simultaneous output of independent audio weather information on 1 to 13 NOAA Weather Radio (NWR) transmitters. Broadcast weather information for CRS is based on the idea of a broadcast schedule specific to each transmitter. Each broadcast schedule is a broadcast plan ultimately built from groupings of message types called broadcast suites. Different broadcast suites are used for a particular type of weather conditions or seasons. Broadcast suites can be ranked to define their importance for scheduling, broadcasting, priorities, and incoming weather message importance. In addition to actions taken by the operator these suites and priorities establish the order of sequencing of weather messages output to a transmitter, which is called a broadcast cycle. Broadcast cycle management requires controlling, sequencing, and outputting special alert and warning tones, as well as weather messages in recorded human voice or synthesized voice.

II-1.1   Systems in Use Prior to CRS

Before CRS arrived on-site, a similar function was performed by a variety of systems on AMPRO, DALKE, Interralia, and Digital consoles. The AMPRO consoles are the oldest, very difficult to maintain, and cumbersome to operate. In the early 1990's the other three consoles were purchased as interim replacements for the AMPROs until the CRS was able to replace them. These systems were much easier to program for disseminating manually produced official National Weather Service (NWS) products. They also were made of solid-state components, making them much easier to maintain.

II-1.2   System Description

The CRS is based on a proven "distributed" system architecture incorporating personal computer (PC)-based computer systems interconnected by an Ethernet local area network (LAN). The entire configuration is controlled from an operator environment equipped with an X-Windows based graphical user interface (GUI) and a panel of manual controls and status indicators in support of the backup live operational mode. CRS provides the user-friendly GUI at two CRS operator positions for controlling and monitoring system activity. Operator input is made by commands entered via mouse clicks, menu selections, and data entry.

Reliability is assured through redundancy of hardware (dual main systems) and data/product file shadowing/mirroring, extensive use of commercial off-the-shelf (COTS) software (e.g., UNIX), reusable hardware and software components (secure network queue manager) and designs, and careful adherence to operating system, programming language, and interface standards (e.g., POSIX, C, and GOSIP).

Speech processing is performed by independent COTS components in separate domains (voice digitization on the main processors [MP], voice synthesis on the front-end processors [FEP]), merged and augmented by tone generation and NWR Specific Area Message Encoder

(NWRSAME) codes prior to transmitter output. The NWRSAME function responsible for computer-controlled frequency shift keying (FSK) modulated message generation is fully integrated to ensure proper synchronization with voice output. Final confirmation of the NWRSAME message being included in the actual transmitter broadcast is obtained via the Remote Off-Air Monitoring System (ROAMS) monitoring unit (MU) dial-up capability of CRS.

For more details on the specific configuration, refer to the CRS Technical Information Package (TIP), Engineering Handbook (EHB) Number 7.

II-1.3   Concept of CRS Operations

The following sections describe CRS operations within the NEXRAD Weather Service Forecast Office (NWSFO) and NEXRAD Weather Service Office (NWSO) environment.

II-1.3.1   Normal Operation

During normal operation, the CRS determines and controls the order, timing, and sequencing of all audio transmissions at all configured transmitters by preselected and stored broadcast program decisions, incoming weather message attribute information, and on-line operator commands. CRS operator intervention is not necessary for providing and controlling continuous weather information output to all configured transmitters. However, operator hands-on control is available to modify system operation or broadcast live if desired. Weather messages enter the system in one of three ways:

- ! From a microphone (human voice)

- ! From the Automation of Field Operations and Services (AFOS)/AWIPS communication link (American Standard Code for Information Interchange) [ASCII] text)

- ! From a diskette (ASCII text).

Messages scheduled for output are converted to analog, if a digitized human voice recording, or are converted to synthesized voice if ASCII text. Alert tones, transfer tones, and NWRSAME FSK modulated message information are output along with the messages as required. Weather messages in a broadcast cycle are repetitively transmitted (steady state) until a condition arises that requires a change to the cycle, such as:

- ! Input weather message to "trigger" a change in the cycle, replace, or interrupt the existing cycle. A "trigger" message is one which causes, upon receipt for inclusion in the broadcast cycle, a change in the broadcast suite. (In general, cycles become shorter with fewer messages during times of threatening weather.)

- ! Expiration of a scheduled message in the cycle.

- ! Expiration of a "trigger" or timeout of transmission of a message.

- ! Operator action to modify the cycle (e.g., an emergency live broadcast, transfer tone transmission, broadcast cycle change, or change in suite content).

Stored weather messages remain on the disk until they are replaced or removed. All weather message processing events (input, storage, output, and deletion) are recorded in a log on the disk.

II-1.3.2   Emergency Override

An emergency override (known as "EO") form of operation can be used when warning generation is done manually through CRS. The operator goes "live" from the microphone and immediately interrupts current broadcasting at a specified transmitter or transmitters. The warning is recorded simultaneously for subsequent scheduling and rebroadcast.

II-1.3.3   Backup Live

In case of computer processor failure or the need to go to live operation, the CRS has a backup live operational mode. The operator manually takes control of the transmission capabilities of the system through the audio control panel electronics. Message output is limited to analog voice routed directly from the operator's microphone to selected configured transmitters, completely avoiding all CRS computer components. Additionally, the operator has the capability for sequencing and controlling alert tone generation, and NWRSAME message generation to multiple transmitter output channels at the same time.

II-1.4   Levels of Operation

The concept of "levels of operation" means each NWSFO or NWSO can operate the CRS to meet its specific requirements. An office that received its CRS recently may not yet be comfortable with all the features it provides. Likewise, offices that have had a great deal of experience with CRS may be using most of the advanced features of the system, including full use of the synthesized voice to disseminate all office-critical products. The sections in Addendum II describe the levels at which each office can operate the CRS. However, there are no restriction in moving from one level to the next, even after the site has commissioned its CRS. Rather, the purpose here is to provide the Weather Service Headquarters (WSH) with an understanding of the level of operation the field office intends to commission the CRS in order to decommission systems in use as described in Section II-1.1.

II-1.4.1   Level 1 Operations

This level of operation is the minimal CRS level operating at a field office. Official NWS products are recorded using the manual, digitized features of the CRS. STATIONID is issued using the synthesized voice over the associated NWR transmitters. The office interfaces to either AFOS, Pacific Region Operations Network (PRONET), or Alaska Region Operations Network (ARONET) for disseminating the Hourly Weather Roundup (HWR) in the synthetic mode. In addition, each office must perform the necessary alignment procedures between the CRS and its associated NWR transmitters. This must be done in accordance with the CRS TIP, Attachment 2. The field office still performs the necessary data base and data dictionary updating to ensure that STATIONID and HWR are being transmitted correctly.

Training of operations and maintenance personnel must have been completed to meet this level of operation. Initial user notification messages are issued over the NWS transmitters informing the public of changes associated with CRS, especially initial use of the synthetic voice. Also, the office begins outreach efforts with Emergency Alert Service (EAS) broadcasters, emergency managers, and other groups. ROAMS will be interfaced to the CRS for receiving maintenance monitoring status messages. The ROAMS will be interfaced in accordance with the TIP as specified in EHB-7.

II-1.4.2   Level 2 Operations

This level of operation builds on Level 1 operations with a mix of some manually produced CRS products (e.g., warnings and marine products) while most routine products are issued using synthetic voice with interface to a host system. Forecast zone and climate products are examples of those now transmitted using the automatic features of CRS. Like Level 1, training of operation and maintenance personnel must have been completed to meet this level of operation.

Each office must perform the necessary alignment procedures between the CRS and its associated NWR transmitters. This must be done in accordance with the CRS TIP, Attachment 2. The field office still performs the necessary data base and data dictionary updating to ensure that all transmitted products are correct. Offices can use regional formatters, such as *STORMI/ZIP* or *Air Waves* (see Section II-1.5), to support the transmission of these products. Likewise, official NWS products required from other offices are acquired from the host system and routed to the CRS for transmission over the correct transmitter.

User notification messages are issued over the NWS transmitters informing the public about the additional use of the synthetic voice. Also, the office continues outreach efforts with the various groups described in Section II-1.4.1. ROAMS has been interfaced to the CRS for receiving maintenance monitoring status messages.

II-1.4.3   Level 3 Operations

With this level, CRS is utilized to completely automate all essential products with only a rare product needing manual recording. Even warnings are issued at this level, and only the occasional "specialized" product (e.g., recreational forecast) needs manual recording. To attain this level, all transmitters interfaced into the CRS are automated to the maximum degree.

II-1.5   Automated Formatter Packages

With the introduction of CRS and some of the earlier systems in use, NWS regions determined a need for automating most of the manually produced official NWS products through the use of automated formatter packages. Two packages in use at NWS offices today are *STOMRI/ZIP* and *AIRWAVES*. These packages take products from a host computer (AFOS, ARONET, and now AWIPS) and translate them into a "CRS-compatible" format (i.e., add the necessary codes and delimiters for CRS to voice). In this way, products can be converted to synthetic voice with little or no human involvement. The most important feature of these packages is their ability to take just about any product delivered to them and have it translated for CRS use.

II-1.6   Purpose of Commissioning CRS

With the deployment and installation of CRS at NWSFOs and NWSOs, each office determines the degree by which they use CRS (i.e., level of operation) to meet their local dissemination requirements. The purpose of commissioning CRS is to identify the level of operation and to validate that an office no longer requires the older consoles. The highest priority is the removal of AMPRO consoles from field offices since they are unsupportable. Other systems described in Section II-1.1 can remain on-site with an explanation note on the *CRS Commissioning Report* (see Section II-3.3); however, national support in the form of repairing these units will cease for each site as the CRS is commissioned.

The intent is to commission CRS at each office prior to commissioning AWIPS at the same location. Therefore, it is assumed the CRS has been commissioned before the AWIPS commissioning process is completed. Refer to Addendum I for AWIPS commissioning requirements.

II-2   CRS Commissioning Process

The following section provides an overview of the CRS commissioning process and the steps involved in completing the necessary documentation.

II-2.1   General Overview

The *CRS Site Component Commissioning Evaluation Package* provides the instructions, responsibilities, and forms used by the evaluation official (EO) for conducting and documenting a CRS commissioning evaluation. The CRS *commissioning process* is performed at each office to verify its ability to fully support field operations and to demonstrate CRS' ability to replace current systems, within the office, performing a similar function. The *commissioning evaluation* is, thus, a series of checklist items verified during the commissioning evaluation conducted at the field site. As each item is deemed satisfactory, it is checked off from the list. In a number of cases, checklist items may be considered "non-applicable" to the office environment, in which case these items would not be evaluated. Checklist items not considered satisfactory are handled in one of the following ways:

> **!**   The problem is corrected on-site through a new procedure,

> **!**   A CRS software "interim release" for the correction is provided to the site, or

> **!**   No correction to the problem is imminent and, as a result, the current method is retained.

Each of these options is discussed. No unsatisfactory item is allowed to continue; instead, the commissioning of the site is suspended until the problem is resolved.

A world-wide-web (www) page has been established for assisting each office with understanding some of the network changes that will occur during the commissioning phase. There are network

diagrams for each site, an official NWS product identification translator, and specialized reports than can assist with completing the commissioning forms.

Once the evaluation is finished successfully, the EO completes the enclosed forms and assembles them into the CRS Site Component Commissioning Report. The office center management, i.e., meteorologist-in-charge (MIC), signs the report recommending approval, then forwards it to the region. The regional CRS focal point (FP) reviews and makes any corrections, as necessary.

The regional director (RD) signs, indicating final approval of the report for the NWS. The final report is sent to the WSH Commissioning Manager for CRS, who places the report in the Technical Reference Library.

II-2.2   Contents of Package

The *CRS Site Component Commissioning Evaluation Package* consists of the following:

CRS Site Component Commissioning Report Cover Page

! The cover page (included in Appendix II-B, page II-B-1).

! Instructions for completion of this page.

CRS Site Component Commissioning Recommendation/Approval Form

! Description of the form.

! The form (included in Appendix II-B, page II-B-3).

! Instructions for completion of this form.

CRS Site Component Commissioning Checklist

! The checklist (included in Appendix II-B, page II-B-7).

! Commissioning evaluation criteria (Appendix II-A), used for providing guidelines to the EO.

! General instructions for completing the Checklist.

CRS Site Component Commissioning Report

! An example of a completed CRS Site Component Commissioning Report is in Appendix II-C.

Appendix II-A provides the CRS Commissioning Evaluation Criteria used by the EO to perform the evaluation during the commissioning evaluation period, normally a month or more. The elements and criteria are the guidelines for determining whether or not a component of CRS is

satisfactory. When all the pertinent criteria for the site have been successfully met, the commissioning report is prepared and ready for review and approval.

II-2.3   Required Background Reading

Only this addendum, provided by the regional CRS FP, is require reading for all CRS EOs. This addendum provides an overview of the entire CRS site component commissioning process, including descriptions of CRS site components, how it will be interfaced to other office systems, its impacts on field operations, and details about the commissioning process. It also provides some aspects concerning current systems and how they will transition to CRS.

II-2.4   Responsibilities for Conducting the Site Evaluations

The responsibilities for the conduct of site component evaluations are as follows:

    ! **System Commissioning Manager (SCM):**

        The SCM is responsible for the management of the CRS commissioning process. Specifically, the SCM:

        a. Distributes copies of the *Site Component Commissioning Plans* to the appropriate regional CRS FP point along with a site-specific *CRS Site Component Commissioning Report* to be used during the evaluation.

        b. Provides guidance and support, if necessary, in the resolution of deficiencies that can be addressed with regional center resources; coordinates and approves solutions in need of WSH involvement; and serves as approval authority for regionally/locally developed commissioning notes and work-arounds.

        c. Tracks the status of the CRS evaluations and reports to NWS management, as required.

    ! **Regional CRS FP:**

        The regional CRS FPs are responsible for the management of all CRS commissioning activities within their region. Specifically, each regional CRS FP:

        a. Distributes CRS evaluation packages to the MIC/HIC.

        b. Coordinates the resolution of deficiencies that can be addressed by regional resources and obtains approval of the solutions from the SCM.

        c. Coordinates the resolution of deficiencies requiring national headquarters involvement with the SCM.

        d. Reports the status of the CRS commissioning activities in the region or center to regional/center management and the SCM.

! MIC:

The MIC is responsible for the management of the commissioning activities for CRSs within the MIC's geographic area of responsibility. Specifically, each MIC:

a. Serves as the EO at CRS Weather Forecast Offices (WFO) or designates an individual to serve as EO.

b. Provides EOs with the evaluation package for their particular CRS.

c. Provides the EOs with guidance and support, as required, in the resolution of deficiencies that would result in an unsatisfactory rating for the CRS.

d. Reviews and confirms the completeness and accuracy of the *CRS Site Component Commissioning Report* by signing and forwarding it to the regional CRS FP.

e. Reports on the status of commissioning activities to the regional CRS FP.

! EO:

The EO is responsible for the conduct of the commissioning evaluation of the assigned CRS. Specifically, the EO:

a. Conducts the evaluation, with assistance from appropriate operations and system administration personnel, and indicates that evaluation elements are satisfactory by appropriate entries in the *CRS Commissioning Checklist* for the site.

b. Initiates actions, as required, in coordination with the MIC, to correct deficiencies uncovered during the evaluation.

c. Compiles the *CRS Site Component Commissioning Report* for the site, confirms the completeness and accuracy of the evaluation by signing it, retains copies of the Commissioning Report and supporting materials, and transmits the original to the appropriate review officials.

d. Reports on the status of commissioning activities to the review officials.

II-3   Completing a CRS Site Component Commissioning Report

The following instructions describe the processes for completing the forms for the *CRS Site Component Commissioning Report*. Electronic WordPerfect format copies of each portion of the report are available to the site through the www commissioning page (see Section 5.2 of the *Plan*).

II-3.1   CRS Site Component Commissioning Report Cover Page

The CRS Site Component Commissioning Report cover page is included in Appendix II-B. The information in blocks 1 through 8 is self explanatory. Appendix II-C provides an example of a completed cover page.

Steps in completing the cover page are:

Step 1. Enter the **Office Name**, and **Office SID**.

Step 2. Enter the appropriate **Office Type** as: NWSFO or NWSO.

Step 3. Enter the approving official title, initially, Regional Director. If approval is delegated to the MIC, this title is the correct entry.

Step 4. Leave the **Data Commissioned** blank. The SCM will complete this field.

II-3.2   CRS Commissioning Checklist

The *Commissioning Evaluation Criteria* are the detailed guidelines used by the EO to determine compliance with the site requirements. The *CRS Commissioning Checklist* (Appendix II-B) reflecting the *Commissioning Evaluation Criteria*, is grouped into seven categories:

!   *Government acceptance of the CRS.*

   Verifies that the Government has accepted all the equipment from the prime contractor and the necessary transfer/property documentation has been completed.

!   *Adequate availability of trained operations and system administration personnel.*

   Validates that the office staff members are trained to operate and administer the CRS through formal course work, centralized user training (CUT), and on-site user training (OUT). Requires staff to be proficient in the use of the CRS in the performance of their duties.

!   *Satisfactory performance of system interfaces.*

   Validates through procedures and information provided to each site the performance of each system required to be interfaced into CRS and the reconfiguration of communication networks in support of those being interfaced.

!   *Satisfactory support of associated NWS forecast and warning services.*

Verifies through everyday experience and, in some cases, actual procedures to be performed, the ability of CRS to support the warning and forecast mission of each office type, i.e., NWSFO or NWSO. Areas included in this category range from technical coordination with office community to evaluation of CRS in everyday operations over a significant period of time to determine "robustness" transmission of weather products from other offices to the CRS in an operational mode.

!   *Proper functioning of service backup capabilities.*

This category consists of only the system backup since there are no plans for driving NWR transmitters from another location. If an office experiences system backup during the evaluation period and it worked properly, no further checkout is required. If the office is forced into a backup scenario and the procedure failed, a remedy needs to be developed for future failure episodes. If none was experienced during this period, a formal checkout procedure will be invoked.

!   *Adequate documentation for operations and system administration.*

Documentation under consideration is user manuals, system administration manuals, technical documentation for local applications development, and Weather Service Operations Manual (WSOM) chapter updates impacting field operations with the introduction of CRS.

!   *System Functions and Security.*

A new category specific to system functions such as validating localization of system-to-site conditions, validation of communication throughput of locally produced products, as well as those from other locations, and ensuring that CRS is secure to outside users.

The *Commissioning Evaluation Criteria* (including instructions/procedures) for the evaluation are provided as Appendix II-A.

During evaluation, the CRS will be operated continuously in the **operational mode**. Official NWS products issued over the CRS are disseminated as **official**. The evaluation period is expected to last one month.

Technical coordination/user outreach (item 4a) may take more time than other checklist items to complete to ensure that the user community is well informed of CRS.

Note: The first requirement, i.e., acceptance, will have been documented as a prerequisite for the initiation of the component's commissioning process.

The EO will draw on the expertise, assistance, and input of the NWS office staff, as required, while performing the evaluation. The EO may or may not be an expert on all the features of CRS. Some items require warning coordination meteorologist input, while others require input from the hydrometeorological technician or electronics staff to complete.

Steps in completing the checklist are:

Step 1. Complete Items 1 through 6 on the *CRS Site Component Commissioning Recommendation/Approval* form.

Step 2. Review the evaluation elements in Appendix II-A. Before beginning the evaluation, determine if all criteria are clear and which apply to your location. If the criteria are not clear, ask office staff who might assist with understanding the criteria. Call the regional CRS FP if questions remain.

Step 3. When the EO is comfortable with understanding the process and the criteria, begin performing the evaluations:

   a. Gather the required information from the operations and electronics staff as necessary. These do not have to be done in any order; rather, complete the ones easiest to accomplish first.

   b. When the criterion for an evaluation element is met, use the *Checklist* to mark the corresponding "S" (Satisfactory) column with a check mark or "X." If a *Checklist* item is not applicable to the site, enter a check under the N/A column.

   Note: <u>All</u> checklist items must have a check in either the "S" or "N/A" column.

   c. If deficiencies are found that would prevent assignment of a satisfactory rating to an evaluation element, notify the office management as appropriate:

   C   Initiate necessary corrective action(s), and/or
   C   Develop a solution (additional maintenance, training, clarification, or approved work-around or commissioning note; see Section II-3.3).

   d. Implement any <u>approved</u> work-arounds or commissioning notes (See Section II-3.3 for details) and, when satisfactory achievement of the evaluation element is demonstrated, mark the corresponding "S" column with a check mark and:

   C   Document the work-around under the "Remarks" section of the checklist
   C   Place a number, corresponding to the work-around, in the "W/#" (Work-around) column.

II-3.3 Commissioning Work-Arounds and Notes

The EO must review and become thoroughly familiar with Section 4.1.3 of the *Plan*. This section discusses the definitions of work-arounds and commissioning notes. An acceptable national work-around is one in which WSH in coordination with the regions agrees that a function of CRS is not adequate enough to replace a system already in use. Each national work-around will have a unique number, starting with the alpha character "N" and followed by a 3-digit number (e.g., 001, 002, etc.). The work-around is further identified by a title with a short description of the problem, and what will be done to correct it. The SCM will coordinate all national work-arounds with

CRS focal points before putting them into effect. When the EO is conducting the evaluation and determines the need for a commissioning work-around, it is annotated to the *Report* under the **Commissioning Work-Arounds** section. There are no national work-arounds envisioned for this system at this time. If one is determined, it will follow this approach.

Each region can also institute a regional work-around, provided it does <u>not</u> require AFOS to remain. Regional work-arounds will have a unique identifier (e.g., A for Alaska, C for Central, etc.), followed by a number, title, and short description. There may be requirements to have regional work-arounds invoked with CRS.

Commissioning notes pertain to current systems not described in the commissioning plan specifically, but which must become part of the CRS because it does not perform the necessary function. Examples of this situation are mostly regional and site-specific functions residing on PCs or workstations. CRS is designed for the national level and may not cover many of these localized applications. When the EO is conducting the evaluation and determines the need for a commissioning note, it is annotated to the *Report* under the **Commissioning Notes** section.

II-3.4 CRS Site Component Commissioning Recommendation/Approval Form

This form is used to recommend or approve the commissioning of each site CRS, including the site components listed in Appendix A to the *Plan* (not to be confused with Appendix II-A). When the evaluation is completed, i.e., the checklist is filled out and any work-arounds/commissioning notes are identified, the EO will complete this form and forward it to the MIC/HIC for signature. **Do this only when you are confident that all applicable evaluation elements have been met and documented as** *satisfactory*. The CRS Site Component Commissioning Recommendation/Approval Form is included in Appendix II-B.

II-3.5 CRS Site Component Commissioning Report

A *CRS Site Component Commissioning Report* consists of the **original copies** of the following, in the correct order:

- **!** Completed CRS Site Component Commissioning Cover Page

- **!** Completed and signed CRS Site Component Commissioning Recommendation/Approval Form

- **!** Completed CRS Site Component Commissioning Checklist

- **!** Documentation of Not-Applicable elements and approved work-arounds/commissioning notes.

II-4 Processing the Completed Report

After the EO has completed the report, it should be sent to the regional CRS FP, **via express mail**. A copy of the report is to be retained by the EO along with the checklist worksheet and these instructions.

When the report is received at the regional office, the regional CRS FP reviews the material for completeness and verifies that the information is correct. Questions, issues, etc., pertaining to the report must be worked out between the office and the regional office. After this has been accomplished, the regional CRS FP will **fax** a copy of the complete report for SCM evaluation prior to the regional director signing the report. The SCM will coordinate with the regional CRS FP and WSH staff any issues or special situations, as necessary. The SCM will inform the region when the faxed report can be cleared by the region.

The final step in the process at the regional or center level is to have the regional director sign the report. A copy of the final signed report will remain with the region. Since the regional director is the approving official, the **original** report with signatures and dates in **ink** will be sent to the SCM **via express mail**. The final report will be placed in the Technical Reference Library.